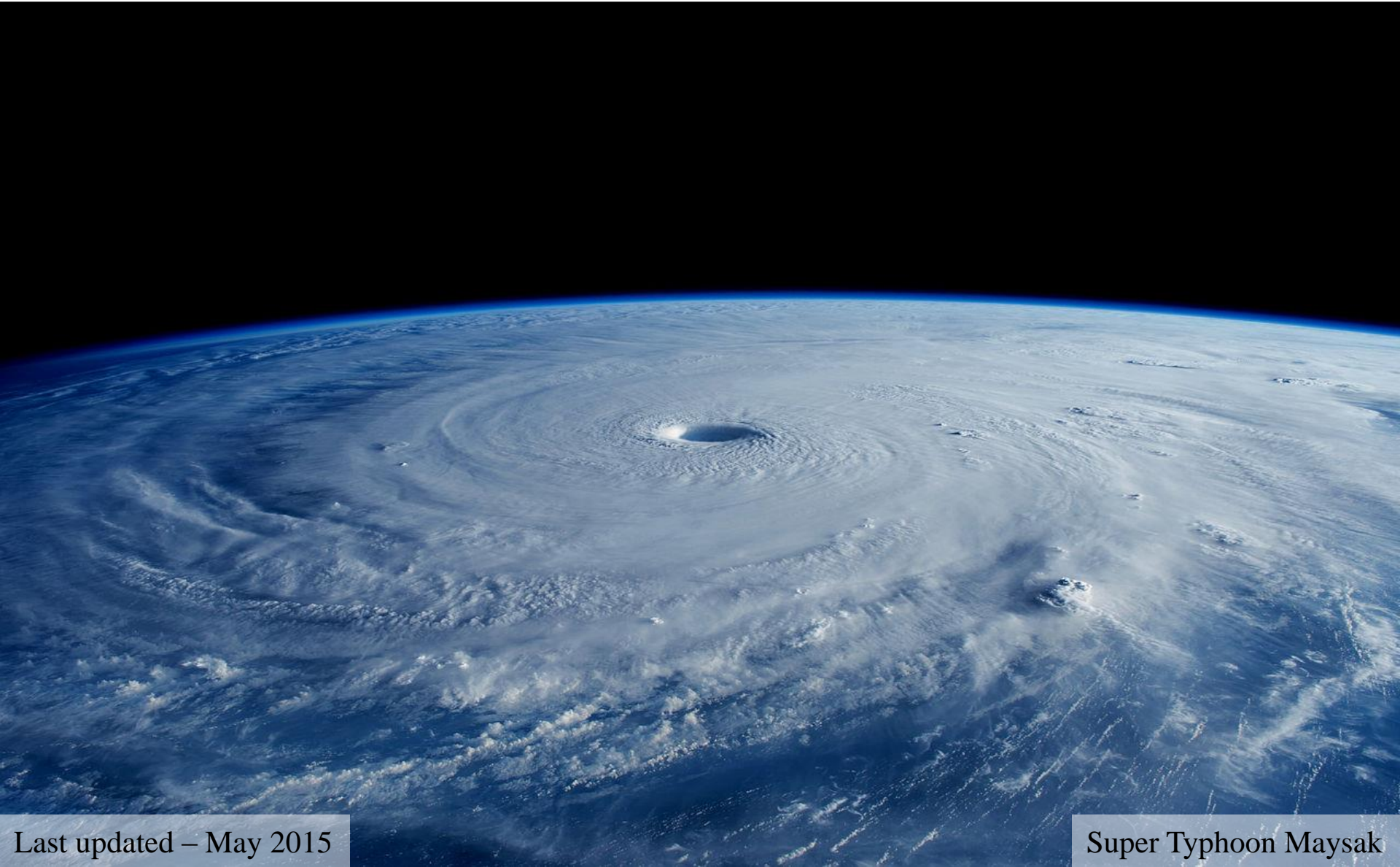


UNCLASSIFIED



MCAS Iwakuni

Tropical Cyclone Awareness Brief



Last updated – May 2015

Super Typhoon Maysak



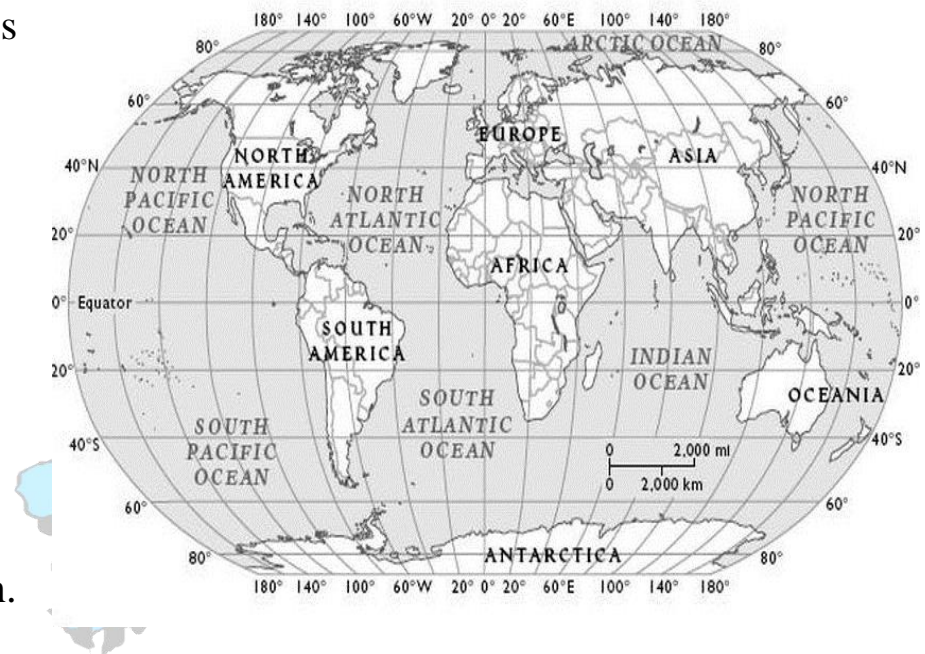
Typhoon....Hurricane....Cyclone.... WHATS THE DIFFERENCE??

WHAT IS THE DIFFERENCE BETWEEN A TYPHOON, HURRICANE, AND CYCLONE?

For starters, a **tropical cyclone** (TC) is the generic term for a non-frontal synoptic scale low-pressure system over tropical or sub-tropical waters with organized convection (i.e. thunderstorm activity) and definite cyclonic surface wind circulation.

The difference between a typhoon, hurricane and cyclone is similar to real estate...LOCATION, LOCATION, LOCATION!

- A Typhoon is a regional term for tropical cyclones that form within the Western North Pacific and South China Sea.
- A Hurricane is a regional term for tropical cyclones that form in the Atlantic Ocean, Northeast Pacific Ocean, Caribbean and Gulf of Mexico.
- A Cyclone is a regional term for tropical cyclones that form North, Southeast and Southwest Indian Ocean and South Pacific Ocean.





Tropical Cyclone Facts

- Tropical Cyclones are powerful storms that can cause catastrophic damage if residents aren't prepared.
 - Strong winds
 - Heavy rain
 - Storm surge
- More tropical cyclones form in the tropical western North Pacific than anywhere else in the world.
- Most tropical cyclones form east of the Philippines, and move across the Pacific toward the Philippines, Japan, and China.
- Topography in Japan reduces the tropical cyclone wind speeds and limits the storm surge however this doesn't fully mitigate the danger.
- Since 1951, there have only been 2 typhoons that have come within 20KM of MCAS Iwakuni.
 - Typhoon Kirk (1996)
 - Typhoon Mary (1968)





Tropical Cyclone Wind Classification



RSMC Tokyo's Tropical Cyclone Intensity Scale	
Category	Sustained winds
Typhoon	≥64 kt ≥118 km/h
Severe Tropical Storm	48–63 kt 89–117 km/h
Tropical Storm	34–47 kt 62–88 km/h
Tropical Depression	≤33 kt ≤61 km/h

- The Japan Meteorological Agency's Regional Specialized Meteorological Center (RSMC) in Tokyo has created their own scale which has been adopted by all other surrounding countries.
- The Joint Typhoon Warning Center (JTWC) modifies the RSMC scale. The JTWC merges the severe tropical storm into the tropical storm category and has the super typhoon category when wind speed reaches 130kt (150 mph).

- The National Hurricane Center (eastern and western coast of the US) and the Pacific Hurricane Center (Hawaii) use the Saffir-Simpson scale.

Saffir–Simpson hurricane wind scale	
Category	Wind speeds
Five	≥70 m/s, ≥137 knots ≥157 mph, ≥252 km/h
Four	58–70 m/s, 113–136 knots 130–156 mph, 209–251 km/h
Three	50–58 m/s, 96–112 knots 111–129 mph, 178–208 km/h
Two	43–49 m/s, 83–95 knots 96–110 mph, 154–177 km/h
One	33–42 m/s, 64–82 knots 74–95 mph, 119–153 km/h
Additional classifications	
Tropical storm	18–32 m/s, 35–63 knots 39–73 mph, 63–118 km/h
Tropical depression	<17 m/s, <34 knots <38 mph, <62 km/h



Tropical Cyclone Formation

Tropical Cyclone Recipe

Ingredients

- *80°F or higher ocean temperature*
- *1 pre-existing low pressure*
- *20 knots or less winds aloft*
- *300 NM distance from Equator*



Instructions

1. *Have an area of already existing low pressure close by*
2. *Combine warm, moist air from ocean. Let the warm air rise to further lower pressure*
3. *Make sure distance from equator is at least 5°-10° away for Coriolis effect*
4. *Ensure winds aloft are not too strong!*
5. *An unorganized area of thunderstorms will start to develop and eventually start to rotate around an undefined center which will be referred to as a Tropical Disturbance*



Tropical Cyclone Definitions

- A *tropical disturbance* is a migratory, organized region of convective showers and thunderstorms in the tropics that maintains its identity for at least 24 hours, but has no closed wind circulation.
- A *tropical depression* (TD) is a tropical disturbance in which the closed wind circulation can be identified and the maximum sustained surface wind speed is **33 knots or less**.
- A *tropical storm* (TS) is a tropical cyclone in which the maximum sustained surface wind speed ranges from **34 to 63 knots**. Upon being categorized as a tropical storm, a name is given to the tropical cyclone.
- A *Typhoon* (TY) is a tropical cyclone in which the maximum sustained surface wind speed ranges from **64 to 129 knots**.
- A *Super-Typhoon* is a tropical cyclone in which the maximum sustained surface wind speeds **exceed 129 knots**.

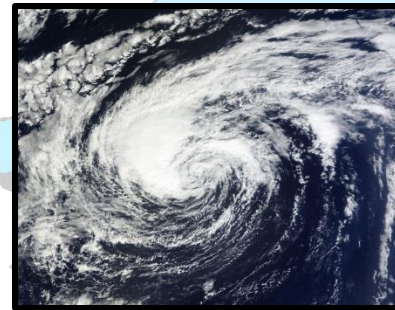
Tropical Disturbance



Tropical Depression



Tropical Storm/Cyclonic Storm



Typhoon/Hurricane/Cyclone

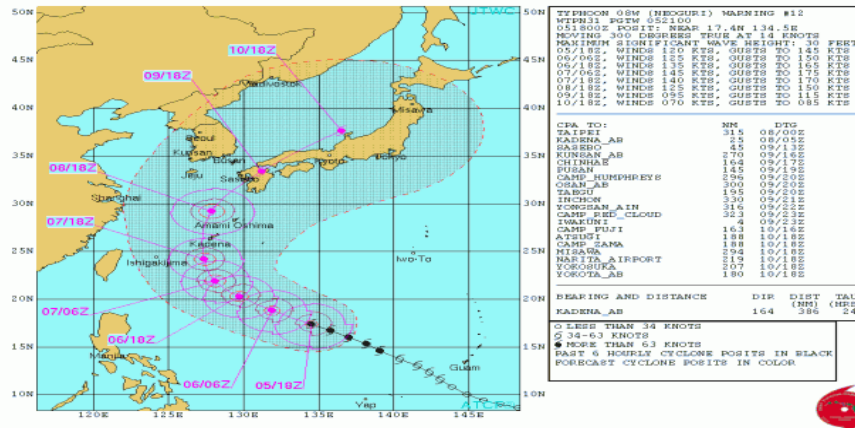




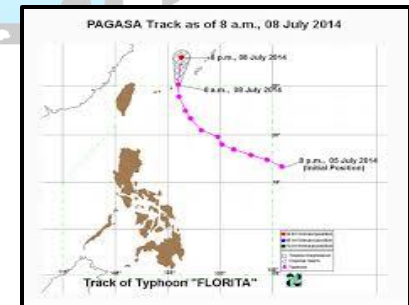
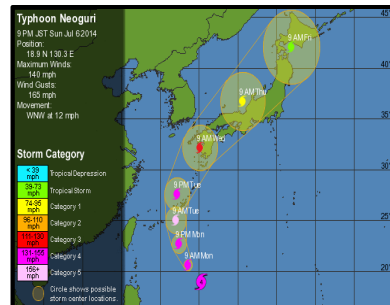
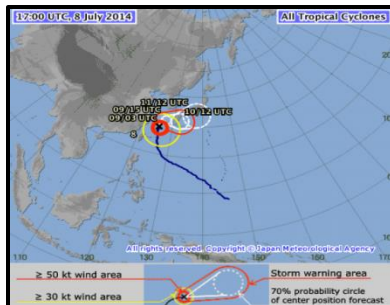
Joint Typhoon Warning Center Authority



The JTWC is the Department of Defense (DOD) authoritative source for tropical cyclone warnings to military assets in the USPACOM AOR - *USPACOM INSTRUCTION 0539.1*

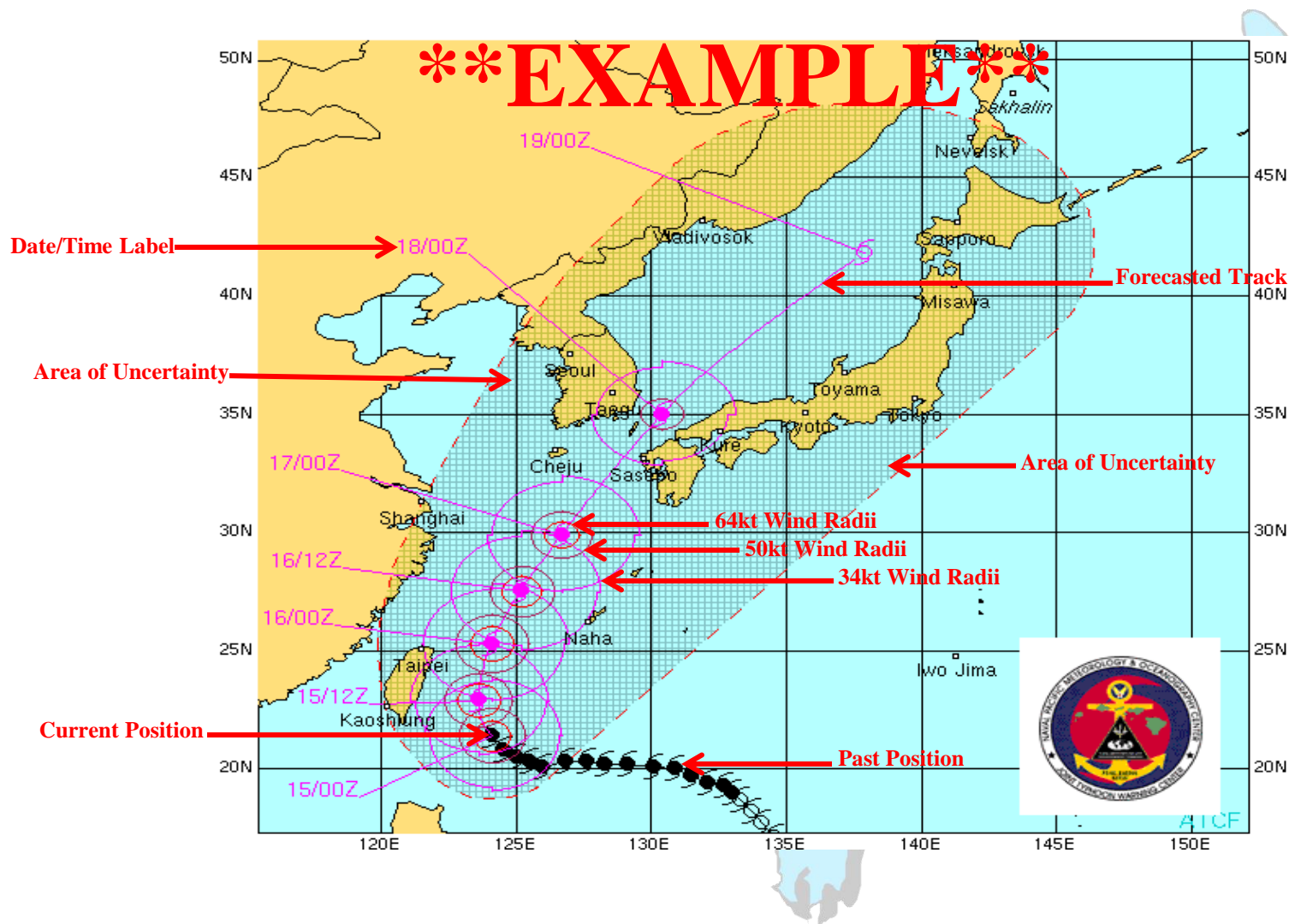


Tropical cyclone information for the Western Pacific can be obtained from various sources to include the Japan Meteorology Agency however, keep in mind, **the JTWC is the authoritative source** for MCAS Iwakuni.





Joint Typhoon Warning Center Legend Graphics





Tropical Cyclone Conditions of Readiness (TCCOR) Definitions



* Red italics indicate a pending action upon MCASO P3140.3Z revision based on updated USFJ 15-4001

Destructive Winds. Winds of 50 knots sustained or greater *and/or gusts 60 knots or greater*. Destructive winds can typically cause injury to exposed personnel, damage to aircraft, ships, structures and/or facilities.

TCCOR V *Historical trends indicate a possible threat of tropical cyclone within 96 hours. Set seasonally from June 1st thru November 30th*

TCCOR IV

Destructive winds are **possible** within 72 hours.

TCCOR III

Destructive winds are **possible** within 48 hours.

TCCOR II

Destructive winds are **anticipated** within 24 hours.

TCCOR I

Destructive winds of 50 are **anticipated** within 12 hours.

TCCOR IC (Caution)

Winds of 35 to 49 knots are occurring on Station.

TCCOR IE (Emergency)

Destructive winds are occurring on Station.

TCCOR IR (Recovery)

Destructive winds are no longer occurring. Emergency crews, Safety, and Facilities personnel assess Air Station readiness for normal operations. All other non-mission essential personnel must remain indoors until TCCOR All Clear is declared.

TCCOR Storm Watch

Although destructive winds are subsided or currently no longer forecasted, there is still a possibility of danger due to the proximity of the storm and due to the unforecasted changes in storm track and/or strength. Personnel should follow SOP for TCCOR Storm Watch and stay alert for any changes to TCCOR status.

TCCOR All Clear

The storm is over and not forecasted to return and recovery efforts are considered complete by the CO, MCAS Iwakuni. All tropical cyclone imminent dangers have passed. Return to TCCOR V.



Summary of actions taken for each TCCOR




* Red italics indicate a pending action upon MCASO P3140.3Z revision based on updated USFJ 15-4001

TCCOR V

- *All personnel shall review the Destructive Weather Bill, MCASO P3140.3Z!!*
- *More specific tasks throughout the MCASO P3140.3Z*
 - *OIC's/Dept Heads/Special Staff Asst.*
 - *DECA*
 - *Defense Reutilization and Marketing*
 - *Logistics*
 - *POA*
 - *S-6*
- *Review section SOP, dictate specific actions for subordinate personnel*

TCCOR IV

- *All personnel shall review the Destructive Weather Bill, MCASO P3140.3Z!!*
- Ensure a sufficient number of sandbags and tie-down materials are on hand



UNITED STATES MARINE CORPS
MARINE CORPS AIR STATION IWAKUNI, JAPAN
PSC 861 BOX 1861
FPO AP 98310-0019

MCASO P3140.3Z
OPS
07 JAN 2014

MARINE CORPS AIR STATION ORDER P3140.3Z

From: Commanding Officer
To: Distribution List

Subj: DESTRUCTIVE WEATHER BILL

Ref: (a) MCBJ/III MEFO 1050.7A
(b) OPNAVINST 3140.24F
(c) USFJ Instruction 15-
(d) MCBJ/III MEFO 300.01D
(e) MCAS Iwakuni AP/Plan
(f) JAGINST 5800.
(g) MCO 10110.14M

Encl: (1) Destructive Weather Bill Directed Command and Control Procedures

1. *Situation.* Destructive weather poses a significant threat to mission accomplishment, personnel and government property. Accurate and timely weather warnings, careful preparation and planning and with prompt and effective action will minimize loss and damage from destructive weather.

2. Cancellation. MCASO P3140.3Y.

3. Mission. Establish policies and procedures for all personnel within the Iwakuni area in the event of destructive weather. Provide all permanent and tenant units detailed instructions and responsibilities.

4. Execution

a. Commander's Intent. To provide advance warning of destructive weather via 24-hour weather services and activate positive control measures to reduce the effects of destructive weather on personnel and property.

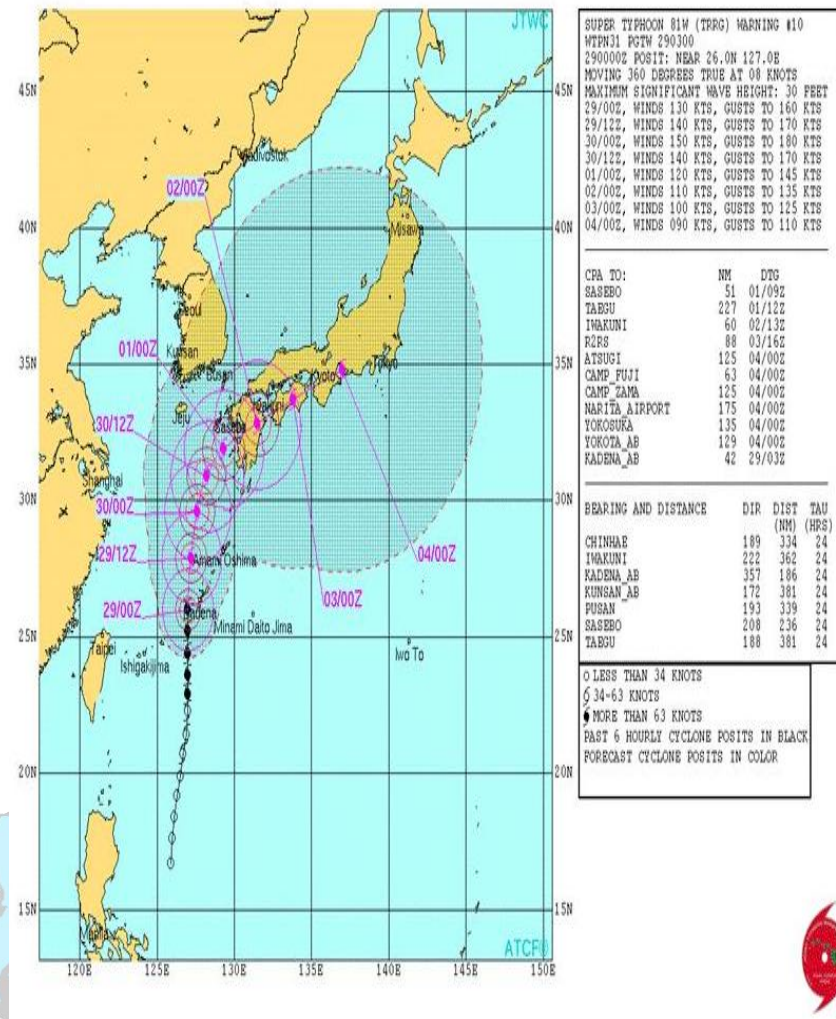


Summary of actions taken for each TCCOR



TCCOR III

- Leave and liberty suspended by OIC's/Dept Heads/Special Staff Asst. as necessary
- Inspect, tie-down, sandbag, and police designated areas of responsibility
- Ensure equipment that may be damaged by water is placed as high off the ground as practical
- More specific tasks throughout the MCASO P3140.3Z
 - OIC's/Dept Heads/Special Staff Asst.
 - DECA
 - H&HS CO
 - EOC Manager
 - Facilities Officer
 - Harbor Operations
 - Housing Officer
 - Logistics Officer
 - M.C. Perry Principal
 - Preventive Maintenance Officer
 - S-4 Officer
 - Safety Officer
 - Typhoon Coordination Center Officer





Summary of actions taken for each TCCOR



TCCOR II

- Personnel shall minimize telephone calls to the Weather Service Branch
- Return all non-emergency vehicles to the motor transportation division as early as possible
- **Alcohol sales are secured !!**
- More specific tasks throughout the MCASO P3140.3Z
 - OIC's/Dept Heads/Special Staff Asst.
 - Combat Camera
 - DECA
 - Director, MCCA
 - Facilities Officer
 - Food Service Officer
 - Logistics Officer
 - Provost Marshals Office
 - Typhoon Coordination Center Officer





Summary of actions taken for each TCCOR



TCCOR I

- M.C. Perry Schools, the Primary Care Center, the Child Development Center, and the Preschool will close.
- All non-essential civilian personnel will be released.
- **Alcohol will not be consumed during Conditions I, IC, IE, IR and Storm Watch; when all military personnel are considered to be in a duty status.**
- More specific tasks throughout the MCASO P3140.3Z
 - OIC's/Dept Heads/Special Staff Asst.
 - DECA
 - M.C. Perry Principal

TCCOR IC (Caution)

- All non-essential military personnel will be released and immediately transit to their quarters or designated shelters in anticipation of TCCOR IE
- Essential military personnel consist of:
 - PMO
 - Fire Department
 - Branch Health Clinic
 - Weather Service Branch
 - Combat Camera
 - Boat House personnel
- Military personnel traveling to mess halls will be authorized during meal hours only.
- More specific tasks throughout the MCASO P3140.3Z
 - OIC's/Dept Heads/Special Staff Asst.
 - Combat Camera
 - DECA
 - MCCS and Logistics OIC
 - PMO
 - S-6 OIC



Summary of actions taken for each TCCOR



TCCOR IE (Emergency)

- All personnel shall remain in shelters/quarters unless authorized by the Provost Marshal's Office (PMO), BMC, or TCC to be outside.
- All air station traffic will cease except for emergency vehicles responding to life-threatening events.
- Gates shall be closed with the exception of the main gate.
- Shuttle bus service will be discontinued until the "All Clear" is given.
- More specific tasks throughout the MCASO P3140.3Z
 - OIC's/Dept Heads/Special Staff Asst.
 - Logistics Officer
 - PMO



TCCOR IR (Recovery)

- All non-essential personnel are required to remain in shelters/quarters unless authorized to be outside.
- PMO will restrict all non-essential traffic since an emergency condition still exists.
- Base damage assessment begins.
- More specific tasks throughout the MCASO P3140.3Z
 - OIC's/Dept Heads/Special Staff Asst.
 - Combat Camera
 - Facilities Officer
 - Food Service Officer
 - Preventive Medicine Officer
 - PMO
 - Safety Officer





Summary of actions taken for each TCCOR

TCCOR Storm Watch

- Monitor AFN and channel 16 for updates

TCCOR All Clear

- FOD walk of airfield.
- All issues and supporting documents will be turned in to the original issue points within 24 hours of "All Clear" signal.
- All military and civilian personnel will return to work within two hours of sounding "All Clear" during normal duty hours unless instructed otherwise by their chain of command.
- More specific tasks throughout the MCASO P3140.3Z
 - OIC's/Dept Heads/Special Staff Asst.
 - MWSS 171

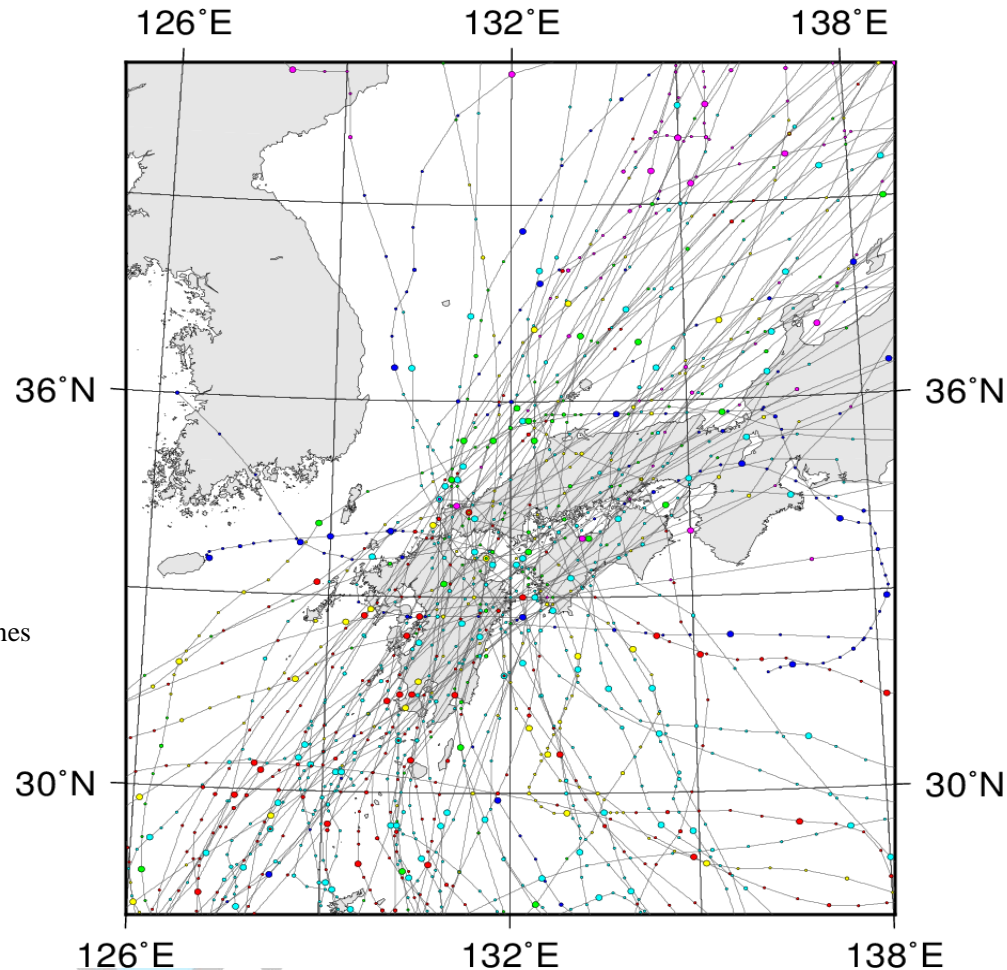
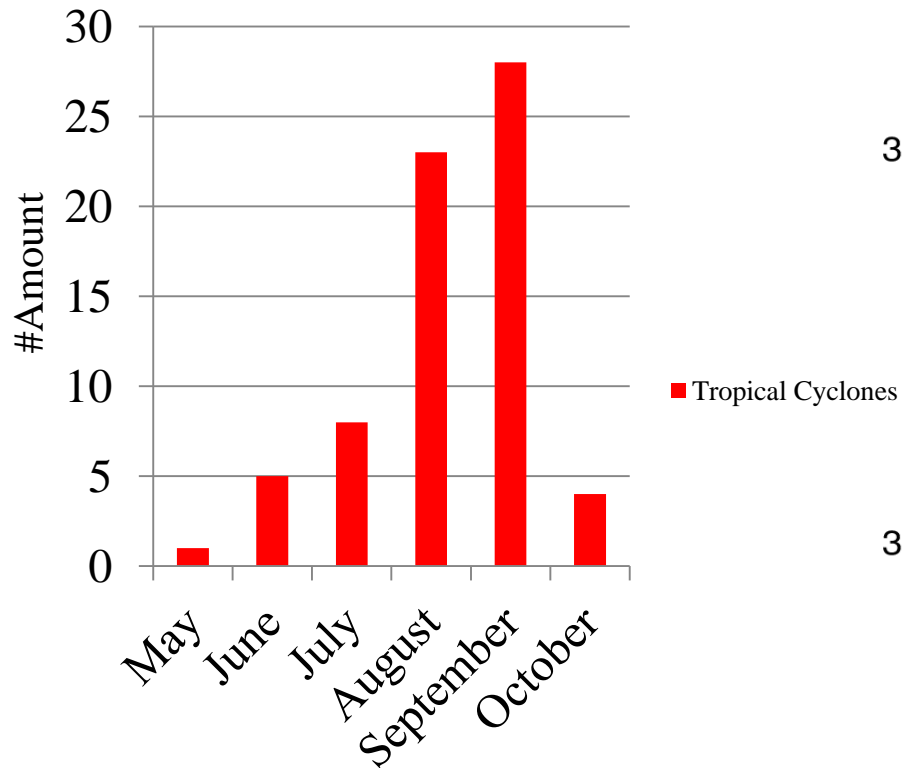




MCAS Iwakuni Tropical Cyclone Historical Data 1951-2014



Tropical Cyclones since 1951 to pass within 150KM of MCAS Iwakuni



Typhoon tracks since 1951 that have passed within 150KM of MCAS Iwakuni

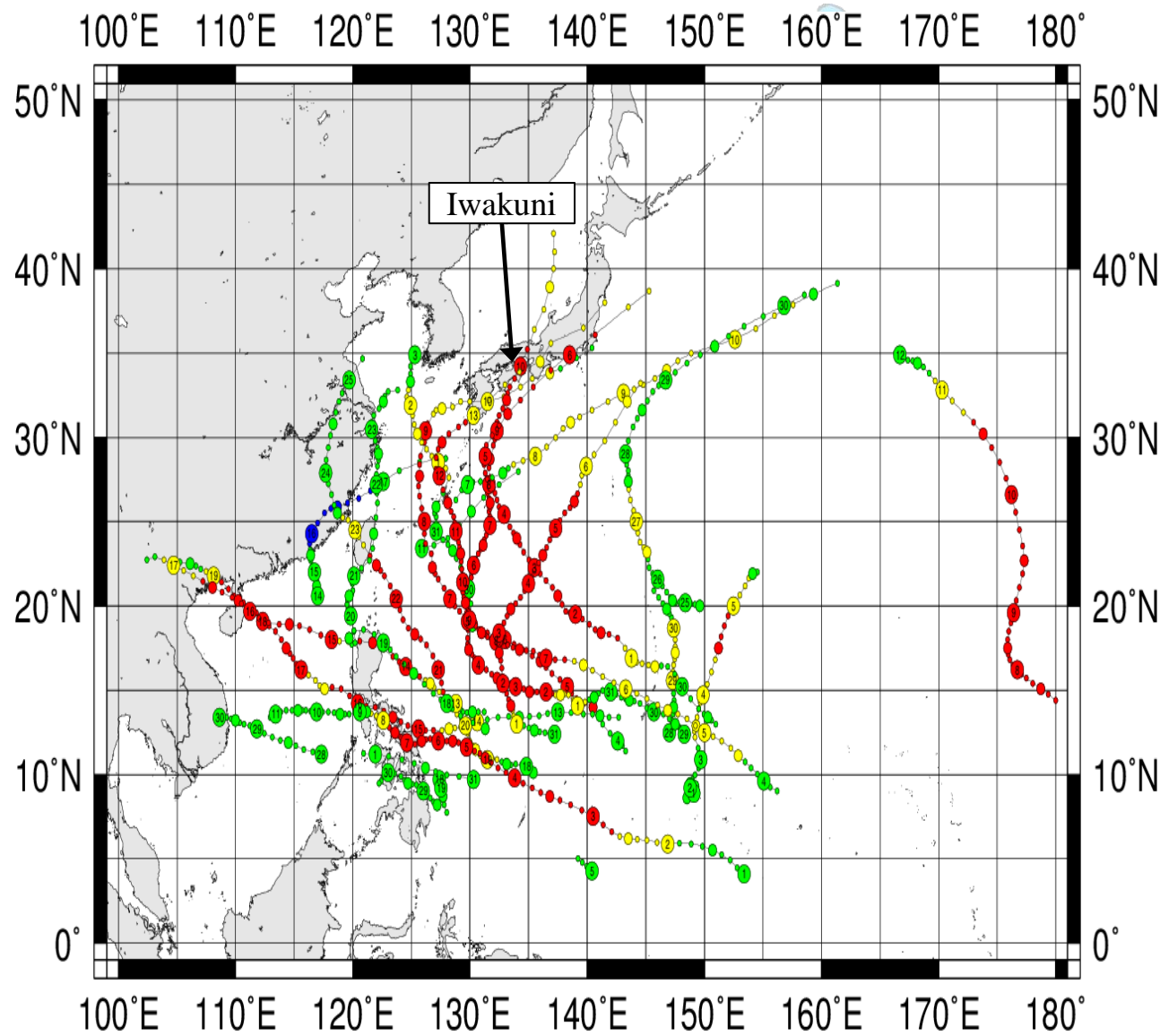


Western North Pacific Ocean Tropical Cyclone 2014 Statistics



2014 Summary

- 23 Tropical Cyclones throughout the north western Pacific
- Typhoon Vonfong was the strongest cyclone to affect MCAS Iwakuni
 - 42kt Max wind
 - 1.92ins rainfall



Color Legend

	Tropical Disturbance
	Tropical Storm
	Typhoon



Contact Information

Weather Service Branch OIC	CWO2 Rakestraw	253-4435
Weather Service Branch SNCOIC	GySgt Heflin	253-4387
TCC Line (TCCOR V – III)		253-6931
TCC Line (TCCOR II – All clear)		253-9300
Automated TCCOR/Warning Line		255-3013

- Station Operations Department, Weather Service Branch is located on the first deck of building 5780 (location of TCC until moved to EOC for TCCOR II)
- Emergency Operations Center is located in building 125 room 119
- MCASO P3140.3_ is available from:
 - SharePoint:
<https://sharepoint.mcbbutler.usmc.mil/Iwakuni/Operations/METOC/Publications/Forms/Pubs.aspx>
 - If unable to access this website please contact the Weather Service Branch for assistance.